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ABSTRACT

This booklet is geared towards persons with autism of all ages who would benefit from enhancing their communication systems through the use of aided communication. It recognizes the importance of an effective expressive communication system to aid them in expressing thoughts and maintaining some power and control over decisions in their lives. Criteria for an effective expressive communication system are listed. The strengths and weaknesses of potential visual communication modes are outlined, including manual signs, gestures, aided communication, facilitation to assist motor movement, and eye gaze. Intervention strategies when using communication boards with persons with autism are suggested. These strategies deal with such issues as limited or infrequent initiation of communication, poor eye contact and pointing skills, picture identification, work within the context of an interdisciplinary team, responsibility for the communication board's use, limited opportunities to community, tendency to not understand the concept of choice, motivating a person to use the communication board, and expanding the communication board. (JDD)

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The University Affiliated Program of Indiana

FUNCTIONAL PROGRAMMING FOR PEOPLE WITH AUTISM: A Series...

ENHANCING COMMUNICATION IN INDIVIDUALS WITH AUTISM THROUGH THE USE OF PICTURES AND WORD SYMBOLS

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by

Michelle G. Winner

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INTRODUCTION

All persons, including those who are disabled, strive for increased independence. As teachers of individuals with disabilities, a large part of our job is to help remove the barriers preventing the growth of independence. For persons with autism, the greatest barrier is the difficulty they have establishing an effective expressive communication system. The majority of individuals with autism need assistance, beginning early in their lives, to enhance their expressive language skills.

An effective expressive communication system can be loosely defined as the combination of different communicative modes (e.g., oral speech, gestures, visually aided communication[1]) through which people can express a variety of thoughts, and maintain a significant amount of power and control over decisions in their lives. Good communicators use a number of difference communicative modes simultaneously, such as oral speech, eye gaze, and physical gestures. Approximately 50% of people with autism are nonverbal. In addition, individuals with autism particularly those who are lower functioning, frequently do not spontaneously develop the use of gestures or eye gaze for the purpose of communicating. Thus, the number of communicative modes available to people with autism often seem limited.

Because individuals with autism are frequently limited in socially acceptable, conventional modes of communication, they often use less socially desirable, unconventional modes to express their messages. For example, a nonverbal student was told by a teacher, "Time to work." The student wanted to protest this request but lacked the skill to do so in a socially acceptable manner; instead he used the unconventional strategy of kicking the teacher to convey his refusal. The teacher reacted to this behavior by scolding the student for kicking while physically assisting him to start working. Since the student's message of refusal was not interpreted or allowed by the teacher, the student's system of expressing himself was inadequate. It did not provide a tool through which he could maintain some control over decisions being made in his life.

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[1]Visually aided communication provides written word and pictured vocabulary in an organized, visually, concrete format. See page 4 for an example

The information in this publication is geared towards persons with autism of all ages who would benefit from enhancing their communication systems through the use of aided communication (e.g., communication boards). The use of the term "student" is a generic term referring to all persons with autism, regardless of whether they are presently placed in a school program. The term "teacher" encompasses all individuals who may live or work with persons with autism. Because four out of five people with this developmental disability are male the pronoun "he" is used exclusively when describing them; however, this information is relevant to both sexes.

Evaluating The Effectiveness Of A Person's Expressive Communication System

While all teachers and caregivers in a person's life have valuable information to contribute in the assessment process, the services of a speech-language-pathologist (SLP) are beneficial to organize and lead the assessment, evaluate the results and develop strategies for intervention. If the student is school-aged, an SLP is available through the school system. If the child is pre or post-school aged, an SLP may be associated with places such as infant programs, rehabilitation centers, adult programs, and hospitals. Private speech therapists are also available in most communities. Because autism is primarily a problem of developing adequate communication and social interaction skills, the services of an SLP are helpful for virtually all persons with this developmental disability, regardless of their functioning level. However, a speech-language pathologist is unavailable, it is important to realize that the student still needs a communication program. With all teachers/caregivers working as a team to discuss existing problems, solutions, and long term expectations, a functional communication program can be developed and implemented.

Begin the development of a functional communication program by reviewing the student's present strengths and weaknesses in this area. A list of criteria for an effective expressive communication system follows with a brief explanation for each. Evaluate your student's skills according to each listed criterion.

- **The System Must Be Conventional**

A conventional communication system is 1) readily and consistently interpretable to all listeners, and 2) not physically threatening to the listeners, e.g., kicking, grabbing or screaming as forms of communication are threatening. According to this definition, manual sign language is considered unconventional because so few people can interpret it. Oral speech if unintelligible, would also be considered unconventional.

- **The System Must Be Intelligible To All Persons, Familiar and Unfamiliar**

Teachers are often so familiar with the desires and dislikes of students that they can interpret their needs without requiring that the students make any overt attempts at communicating. While anticipating students' needs is an immediate solution, it does not help the students learn to interact with less familiar or unfamiliar people. Spending the extra time to teach students to communicate using a variety of modes that are easily understood by all people will insure their developing increasing independence. Table 1 reviews the pros and cons of the different communicative modes in terms of their intelligibility and accessibility.

- **The System Must Be Intelligible In All Environments, Familiar and Unfamiliar**

Persons with autism are most communicative in familiar environments and with familiar people. Transitions, particularly to unfamiliar environments, can be difficult. As the person becomes anxious, communication skills that are easily used in familiar environments become a challenge in the new environments. Thus, it is essential to evaluate a student's ability to communicate effectively across settings. If the student does have difficulty in a particular environment, consider how to enhance his communication system in that environment to help him be successful. For example, a minimally verbal student may be unable to communicate his choices in fast food restaurants because of the abundance of distracting stimuli. A written word communication board can successfully be developed for his use in fast food restaurants to help him focus on something visual and concrete. The student can then point to the food order on his board while he also spontaneously verbally recites his order.

- **The System Must Be Flexible Enough To Meet The Person's Changing Needs**

The system must consist of modes in which Vocabulary can readily be added. By providing alternative modes to say the same message, the student is given the flexibility to communicate through a different mode in case his first effort failed. For example, a student who first speaks, but unintelligibly, can be taught to repeat the message by pointing on his communication board when the listener says "What" or "I don't understand."

- **The System Must Be Used For The Purpose Of Functional Communication**

An example of one student's experience demonstrates functional use: A student was taught manual signs with picture stimuli during traditional one-to-one speech therapy sessions. While the student eventually learned to independently produce over 50 signs, he only did so in speech therapy sessions. Thus, while he could produce the signs, he could not use them for the purpose of communicating his needs in all environments. In this case, the student's ability to produce manual signs was not indicative of his ability to express himself through signs. Had this student been taught to use the manual signs in his natural environments, he would have had a better chance of learning the communicative purpose of the signs.

- **The System Must Be More Powerful For The Student Than The Use Of Interfering Behaviors**

Providing a student with a socially acceptable communication system is an important method for decreasing a student's use of interfering behavior (e.g., screaming, hitting others, self-injury, going limp) as a communicative mode. However, the student's attempts to use the new communication system does not give him more power/control over his life, he will revert back to the use of interfering behaviors.

- **The System Must Provide The Student With The Opportunity To Communicate For A Wide Variety Of Purposes**

Persons with autism begin communicating to request specific objects, actions, and to protest. As their skills increase, they may develop new interactive purposes for communicating such as greeting, requesting, social routines, asking questions, and commenting (Wetherby, 1986). To facilitate the expansion of an individual's communicative purposes, the system through which he communicates must also be expanded.

- **All Components Of The System Must Be Easily Manipulated by The Student**

Accessory communication equipment (e.g., communication board) must be designed to permit the student to transport and manipulate it without physical assistance from teachers or caregivers. For example, a two-sided communication board (CB) was developed for a man with autism who was also severely retarded. While the student demonstrated communicative intent, he could not access all the vocabulary on his CB because he would forget that vocabulary was on the other side and would not turn it over to locate it. Thus the CB was not easily manipulated by him. By redesigning the CB so that the pictures were placed on binder pages, each succeeding page one inch shorter than the next, the student could visually see all the pages that were included and could manipulate his new communication book with ease.

VISUALLY AIDED COMMUNICATION

While oral speech is universally the primary communicative mode of choice, it is often inaccessible and/or cause for great confusion for persons with autism. Looking beyond oral speech as a valid approach to communication is often a difficult but necessary decision for teachers to make when working with persons with autism. A variety of visual communication modes exist.

Table 1
Strengths and Weaknesses of Potential Visual Communication Modes

Modes	Pros	Cons
MANUAL SIGNS (Use of specific finger, hand, arm movements to specific concepts)	Immediately accessible	Intelligible only to trained listener. Abstract - requires ability to deal with abstraction; cognitive skills may be a factor. Requires good perceptual motor skills. Often requires modification of signs to enhance
GESTURES (Use of body movement to convey global concepts)	Immediately accessible. Intelligible to most unfamiliar listeners Often first spontaneous communication acts; sometimes are most easily taught and quickly learned.	Limited vocabulary potential. Impaired spontaneous development in production and comprehension of gestures in persons with autism is often present.

Table 1
Strengths and Weaknesses of Potential Visual Communication Modes

Modes	Pros	Cons
AIDED COMMUNICATION (e.g., communication boards, book, computers)	More intelligible to most unfamiliar listeners than unaided systems. Concrete Permanently displayed message so it lasts over time.	Is contrived - not part of the body (extra baggage). Can be destroyed or lost. Slows down communicative process. Requires adequate visual skills of both student and listener; however, an electronic system can supply voice output for the listener.
FACILITATION to ASSIST MOTOR MOVEMENT (another person touches the person to begin or carry through pointing or touching)	Aids initiation Focuses attention If using an alphabet board allows any message to be conveyed. (all pros for aided communication apply)	Requires familiar and knowledgeable person with rapport Slow, if spelling Output may be influenced by facilitator (all cons for aided communication apply)

Table 1
Strengths and Weaknesses of Potential Visual Communication Modes

Modes	Pros	Cons
EYE GAZE (Use of eye contact to convey communicative intent)	Intelligible to most alert unfamiliar listeners	Requires listener to take active responsibility for decoding the message. Is difficult to teach to the person with autism who often lacks consistent and purposeful eye contact.

Manual sign has been widely used for this population; however, its effectiveness as the primary mode in a person's expressive communication system is questionable. Aside from the fact that manual signs are unintelligible to the layman in the community, and often even to familiar personnel in the student's daily environment; manual signs can be difficult to teach. Clinical experiences when trying to teach manual sign to persons with autism have brought forth the following examples:

a) a student who learned to produce three signs over the course of two years.

b) a student who produced signs, was unclear of their individual meaning; thus he indiscriminately went through his repertoire of signs when he was required to request.

c) a student who could produce signs, but only did so in a "game like" therapy situation.

d) a student who learned to use signs functionally (with many personalized modifications), but who could not learn more than 40 signs. Attempts to teach more signs resulted in the loss of related signs.

When reviewing the literature of nonvocal communication techniques, Kiernan (1983) compared the use of manual signs and the symbols used in aided communication modes (e.g., symbol programs, communication boards) and concluded that "the progress of children in symbol programs designed to teach syntax suggest that symbol teaching may lead to more rapid acquisition of multi-item utterances than sign teaching." He explained that the strength of the symbol system is that the symbols are permanently displayed, (unlike sign and speech, which disappear as soon as they are produced) and therefore easier to access.

The use of aided communication modes has been successful at enhancing the expressive communication skills across all ages and functioning levels of persons with autism. Variations of communication boards have been developed, depending on the student's needs. While it is easy to understand the need for developing a non-speech system for non-verbal persons with autism, aided communication devices are also helpful for individuals with speech who need certain aspects of communication better defined.

Some examples of the use of aided communication devices are:

1. Written or pictured daily schedules and recipes.
2. Work routines written on sequenced flip cards.
3. Progressive development of a communication board or book.
4. A "topic wallet" consisting of topic choices to provide a verbal student with concrete conversational options.A topic wallet consists of placing little cards in the windows where credit cards normally go in a wallet. On each card write a word (or picture) to represent a topic. For example, ·YMCA- can bc written on a card to represent all topics about activities at the YMCA. Use the topic suggestions in the wallet as a guide to help the student choose and change topics. Thus if a student continues to talk on the same topic, encourage him to change topics by using his wallet.
5. Activity specific communication boards, such as free time choice boards, restaurant boards, routine sequencing charts, visual recipes, chore boards, etc.
6. Erasable writing boards attached to communication boards to permit more communicative freedom.

Essentially, aided communication devices consist of permanent, pictured and written vocabulary that is accessed by pointing, eye gaze, or some type of electronic switch. Displaying and organizing a wide range of vocabulary systematically on a communication board or book

is suggested when developing this mode as the person's primary mode of communication. Categorizing words according to their functions, (e.g., proper nouns, verbs, activities), then displaying the functions in the order in which they appear in sentences not only helps the student learn to predict where vocabulary is stored but also facilitates the learning of sentence structure. Coding each function in a different color helps the student to see the difference between word groups.

An Example of Organization of one type of a Simple Manual Communication Board:

People	Action	Food	Objects	Activities	Places	Time
I	want	hamburger	radio	swing	school	morning
John	go	sandwich	book	bicycle ride	workshop	after-noon
Mike	eat	carrot	pictures	car ride	McDonalds	evening
Mom		apple	Uno	swim	Burger King	breakfast
Dad		grape		picnic	Girls Club	lunch
		coke			The Mall	dinner
		Milk			Grocery Store	
		water				

Simple manual communication boards are handmade. Pictures, words, or both are mounted on a durable surface. Communication books are different from boards in that each language category is put on a different page in a binder allowing for a greater volume of vocabulary.

Electronic communication boards are also available. They range in complexity from the very simple touch-a-picture model, (e.g. Intro Talker) to the complex models that have large computer memory and thus require the user to remember the codes to access specific vocabulary (e.g., Touchtalker). All electronic boards have either voice output, hard copy printout, or both. For the higher functioning person, the electronic boards may be of greater potential value. Electronic boards are high in cost and fragile; therefore, they may not be suitable for a student who has intermittent destructive episodes. The messages on the more sophisticated electronic boards must be accessed through memorized specific codes; thus the benefits of using this type of board for its permanent concrete display are lost.

In spite of how simple or sophisticated the communication board/book it simply provides vocabulary and possibly sentence structure. Vocabulary by itself is not communicative; it only becomes communicative when intentionally accessed by the user to convey a specific message. Even after a mode of communication has been developed according to a specific student's strengths/weaknesses, needs, and motivation, the person with autism will still have difficulty creating and communicating specific messages. The objective when introducing a communication board to an individual is to teach how to use the vocabulary to communicate, and not just to teach what vocabulary is on the board. The difference is that when simply teaching what vocabulary is on the board, the teacher is likely to take a trial by trial approach and say, "Show me apple", "Show me bicycle", etc. When teaching how to use the vocabulary to communicate the teacher would withhold the strawberry and other foods on the board and then tell the student, "Tell me what you want, while gesturing for the student to use the board. The vocabulary on the communication board can also be used to provide information to the student. Rather than simply using oral speech to explain an upcoming outing, pair the use of oral speech with the information on the communication board. While explaining to the student that Jane and Sue are going to the grocery store to buy milk and yogurt, point to the key relevant words/pictures on the board simultaneously as you speak. Below is an example of Sue (a teacher) using both speech and pictures to communicate to Jane (a student). The words underlined represent the pictures that were pointed to while Sue verbally explained the event.

> Jane and Sue are going to the grocery store.
> We (Jane and Sue) are going in the car.
> Jane needs money."
> "Jane will buy milk and yogurt."

Because of the extensive and unique communication deficits associated with autism, the process of developing and using a communication board with people who have autism is different than with more sociable populations.

SUGGESTED INTERVENTION STRATEGIES WHEN USING COMMUNICATION BOARDS WITH PERSONS WITH AUTISM

Special consideration must be given when developing a communication program for a person with autism. The successful use of communication boards by this population requires an understanding of the characteristics associated with the disorder. Reviewed below are a variety of issues that must be considered by members of the student's interdisciplinary team prior to implementing a communication board.

A. Limited or Infrequent Initiation of Communication

The desire of individuals with autism to communicate specific messages exists, but most of them have tremendous difficulty initiating – the communication of these messages. A student with autism is often described as "not paying attention to his communication board" because the student does not spontaneously use it to initiate communication. However, the student typically will respond to another person's request, once he understands how to use the communication board.

Intervention Strategies:

- Avoid setting initial objectives that require the student to initiate with the new communication board.
- Do set objectives that encourage the student to respond to concrete, functional questions and requests.
- Initially, all objectives should be set for a relatively low criterion (e.g., 60% correct). Communication, regardless of how it is to be done, is difficult for the student with autism.

B. Poor Eye Contact and Pointing Skills

Learning to use eye contact to look directly at people, pictures, and objects, and developing accurate pointing skills are often considered prerequisites to the introduction of the **communication board** itself. However, because these skills in isolation lack purposeful or functional value, they are extremely difficult to teach to the person with autism. If they are taught successfully in a structured situation, the student usually does not generalize this information to more functional contexts.

Intervention Strategy:

- Introduce the communication board regardless of whether these skills are mastered. Through using the board in functional situations, the student will learn to look at information that is motivating to him. As the same student becomes more adept at using and understanding the pictures/words on the board, teaching the student more refined ways to point to the items will be easier. In the meantime, begin with larger pictures/squares to accommodate the less precise method of picture selection. For very low functioning or young students, objects may be used in place of pictures.

C. Picture Identification

Picture identification skills of approximately 80% accuracy are often considered prerequisite to the introduction of a picture communication board. To accomplish this task, the student is usually asked to look at an array of pictures and point to the one labeled by the examiner. The person with autism often has difficulty completing this task because simply pointing to pictures when commanded has no immediate, clear purpose. Failure to meet this objective implies poor picture identification skills; thus communication boards are often not introduced, and the student does not have the opportunity to develop a more acceptable communication system. Unless a person with autism is motivated to learn, the teaching procedure is long and often unsuccessful. Again, consider the use of objects if picture identification skills are questionable.

Intervention Strategies:

- Teach the skill of identifying pictures as part of the communicative lesson. For example, present a picture of pizza and one of carrots. When the student touches the picture of the pizza, show the student the piece of pizza and pair it with the pictures, then give him a piece of pizza. By doing this type of lesson, you are: a) providing identification, and b) establishing the basics of a communication board by teaching the student the association between selecting a picture and receiving what he wants.

- To make the lesson more communicative you can intermittently ask, "What do you want?" If the student points to a specific picture, immediately give him his request. If he does not point to a picture, assist him to make a selection.

- If the use of pictures is not successful, teach the skill of learning to touch objects to communicate. For example, present the student with a real carrot and real pizza slice enclosed in a clear box (fishing tackle boxes work well). Teach the student to point to the preferred object by touching the box where the item is located.

- Sometimes a student needs a touch to the arm or hand in order to focus and start the pointing movement.

D. Work Within the Context of an Interdisciplinary Team

Communication can occur at all times and in all environments. For this reason, it is essential that teachers and caregivers from all environments work together to coordinate the communication program for a student. All participants in this coordinated effort are members of the student's interdisciplinary team. If a speech language pathologist is available, he should work to establish this team approach. The first duty when establishing a team is to determine how different members can best exchange new information to each other.

The overall goal of the team members is to establish communicative environments that are consistent, motivating and purposeful for the student.

E. Who is Responsible for the Communication Board's Use?

Given that the student who is lower functioning may rarely spontaneously use the communication board, the teacher and caregivers will need to be responsible for the transportation of the communication board, as well as encouraging the student to use it.

The communication board can be constructed with carrying handles to facilitate its transportation, but until the student understands that the communication board is his "voice", he cannot be expected to assume responsibility for transporting and using the communication board without assistance.

Intervention Strategies:

- Over time, the written objectives should reflect the transfer of some responsibility from the teacher/caregiver to the student. However, in the beginning, objectives should only focus on having the student use/carry the communication board appropriately when prompted. Even verbal persons with autism have great difficulty communicating effectively. Thus, a student's use of a communication board will probably always require monitoring and encouragement from the teacher and caregivers. The extent of assistance each student will require over time varies.

- From its inception keep the communication board visually and physically accessible to the student. This is his "voice." It must be available at all times.

F. Limited opportunities to communicate.

The teachers of the person with autism often assume the responsibility of predicting the student's wants and needs. The teachers, in their desire to understand and help the student, become proficient at applying meaning and responding to the student's slightest facial expression or body movement to help compensate for the student's poor communication skills. In this type of relationship the teacher assumes all control of the communicative process. When encouraging a person with autism to learn to communicate, caregivers need to relinquish much of this control by no longer predicting the student's needs. This, in turn, will greatly increase the student's opportunities as well as motivation to communicate. Because of their familiarity with their children, parents are usually the most proficient at interpreting their child's needs. It is also hardest for them to discontinue this behavior.

Intervention Strategy:

- Evaluate all times throughout the day when the student has something he could communicate. After reviewing a student's day, people often realize that the person with autism is actually given very little opportunity to communicate. At this point it is necessary to create more communicative opportunities. This can be done by increasing the number of choices presented to the student and also by having the student request what he typically received for free. For example, if a student is served two snacks a day in addition to his three main meals, the teachers can create

more opportunities for the student to communicate by encouraging him to request each food item served at snack. Upon requesting a specific food item, the student can be given only a small portion of the amount of food available to him. This method encourages him to make more requests, thereby providing him with a number of positive communicative exchanges in a short amount of time. The goal of the teacher is to minimize the number of times she predicts a student's needs while maximizing the number of opportunities the student has to communicate.

G. Tendency to Not Understand the Concept of Choice

Persons with autism are concrete thinkers. When presented with a choice of two board games to play, the person with autism may jump up and remove the one he doesn't want to play with, rather than realize that it he simply selected the one he wanted he would not have to use the other. Making choices is a skill that often needs to be taught.

Increasing the independent living skills of the person with autism is the primary goal of all teaching procedures. Developing a communication system facilitates independence by providing the student with the ability to make choices that mold the events in his life. The ability to communicate our specific choices allows each of us to establish some power and control over our own lives. Thus, making choices and expressing them is the basis of communication and independence for persons with autism.

Intervention Strategy:

- The use of a communication board is an excellent medium for teaching choice making. Through the use of pictures/words the teacher can help define the student's choices. The teacher can then encourage the student to "pick one." Once the student selects one, either independently or with assistance, he should then immediately b~ given access to this choice. A series of choices can then eventually comprise a free time routine.

H. How to Motivate a Person with Autism to Use a Communication Board.

Persons with autism are often described as "unmotivated." Typically this means that the student is not motivated by things the teacher considers to be important. The first step in developing a communication

board is evaluating what motivates the student, regardless of how odd it might be. Some common motivators include: specific objects/toys, eating, doing some form of water play or listening to music. A student may even enjoy smelling a variety of things, staring out the window, emptying the garbage can, rocking, or swinging.

Intervention Strategy:

- A summary list of a specific student's motivators should be used as the beginning vocabulary list for the emerging communication board for that person. When teaching a student to communicate, the teacher can attempt to teach the person that he has some control/power over the events in his life. Providing the student with the vocabulary to request things he likes to do is powerful and reinforcing. Presenting the vocabulary in the form of a communication board gives the student motivation to use the board.

I. Adding Vocabulary and Expanding the Communication Board

Traditionally, vocabulary is added to the communication board only after the student demonstrates proficiency with the existing vocabulary. This method is successful for most persons since they usually have a strong desire to communicate for social satisfaction. People with autism, particularly those who benefit from a communication board, do not participate frequently in a communicative interaction for social satisfaction. Typically, their purpose for communicating is to request or reject. In addition, limiting the vocabulary on their communication board to 2 or 3 words until they demonstrate spontaneous use of those pictures may lake years before more pictures can be added. This in turn limits the opportunities the student has to use the board, which also minimizes his motivation and increases his frustration.

Intervention Strategy:

- Once the person with autism can identify the pictures on his board by understanding that by touching a specific picture, he gets the object/action represented by the picture, more pictures can be added. Thus, if the teacher shows the student a sliced up banana and a cup of milk along with corresponding pictures and asks "Do you want milk?" and the student touches the picture of milk, the communication board can probably be expanded. The

rate at which you expand depends on the student. Try expanding at a rate of two pictures at a time until you can judge the student's skills. The purpose of expanding the communication board (adding more pictures) is to provide a large vocabulary so that the number of communicative interactions involving the communication board are increased. If banana and milk are the only pictures on the communication board, then the student can only use the communication board to talk about 2 things. If 10 pictures are on the communication board, then the functional use of the communication board is increased. Persons with autism need to experience early in the treatment program that the information being taught is useful to them.

- When the communication board is first developed, provide plenty of space for more vocabulary to be added in the future. Once vocabulary is placed on the board, leave each item in the same location. This helps the user to be able to predict the location of desired vocabulary, lessening the amount of time it takes to access the vocabulary.

- The teachers need to be responsible for the student's use of the communication board. Thus, if there are 10 pictures added to the communication board, the teachers must make sure the board is used every time one of those 10 objects/actions appears or is a choice in the student's life.

J. The Use of the Communication Board to Facilitate Comprehension.

Persons with autism have difficulty comprehending as well as expressing language. To facilitate the comprehension of the day's events and choices, teachers can use the pictures on the communication board to supplement their verbal information to the student. For example, if a student needs to work in the workshop prior to drinking a pop, the teacher can explain this to the student verbally, while simultaneously pointing to the pictures representing "work" or "workshop" and "pop."

Oral speech fades as soon as it's spoken, but pictures are concrete, thereby allowing the student extra time to process and review the message.

K. Destroying or Losing the Communication Board.

Because of their poor communication skills, people with autism may become destructive when agitated. Since the communication board is always in the student's presence it may be a target. The experience of a destroyed or lost board will be less frustrating for all those involved if plans have been made in advance. Always make extra copies of the communication board. Plan to make two boards simultaneously; file extra copies of pages.

Expand both communication boards at the same time. Be creative. Pages can be xeroxed successfully if the pictures are not yet colored. If the student tries to tear things up, build the communication board on a lightweight metal, plastic, or on multiple copies of cardboard. Local hardware stores are usually helpful in solving the problem and assisting with the cutting of these materials.

Most importantly, the destruction of the communication board is usually not a student's protest of the board's existence. However, if the teachers feel that the student is not accepting the presence of the communication board, evaluate how the board can be made more useful to the student.

L. What are the Cognitive Prerequisites for Successful Communication Board Use?

The answer to this question is unclear. Most people agree that to use a communication board a student must have knowledge of means-end relationships. The student must understand that he can perform one act to make something else occur. Flicking a light switch to turn on a light is an example of a means-end relationship.

Debate continues as to whether a base mental age is required to necessitate successful communication board use. While logic suggests that some minimum cognitive level must exist, this is difficult to define since cognitive assessment of persons with autism can be imprecise.

Because there are no clear answers, if a student has knowledge of means-end relationships, consider the use of a communication board. If after a number of months, you see no progress, do not completely reject the idea. Instead, pursue teaching less traditional communicative

strategies such as the student taking a person's hand and leading the person to what he wants. Then in another six months, try introducing a picture or object CB again.

Persons with autism who are unsuccessful with a specific task, will frequently achieve more success with the same task at a later date. Too often an idea is tried once and, if unsuccessful, permanently disregarded.

M. Setting Realistic Objectives and Planning for Progress, Even if Slow.

The use of communication boards with persons with autism can be successful in facilitating communication. This is true particularly if the teachers understand how the nature of autism will dictate realistic communication board development and use.

A large part of successful communication board implementation is setting objectives that the student can meet. Because the act of communicating is difficult for persons with autism, the first set of objectives should deal only with the student's willingness to have the communication board in his presence and to use it with physical assistance. The teacher's use of modeling and/or touch cues is acceptable at this point, and often needed.

An example objective might be:

Jack will accept physical assistance to touch a motivating picture on his board 85% of the charted time.

Jack will accept the communication board at his work tables in all environments 90% of the charted time.

Once this has been met, then begin to focus on having the student point to specific pictures when asked what he wants. (e.g., Jack will point to the picture representing the preferred object, when asked, "Do you want or ?" 70% of the charted time.

The school will most likely get through these preliminary objectives relatively quickly; thus if the student's IEP is written on a yearly basis be sure to have more progressive objectives to work on once these are met.

At this point the teacher may broaden the scope of the board by using it in a number of environments and to request a variety of different things (e.g., food, activity, chores). Until the teachers observe the student beginning to initiate the use of his board on his own, avoid setting objectives that include initiation of the board.

A large part of the success with a communication board depends on whether the communication board is presented in a positive manner. Setting small, attainable objectives helps the student and his teachers feel successful throughout its development.

Be prepared to move at the pace of the student. Frequently persons with autism tend to take a long time to learn, especially something as abstract as the power of a communication system. Just as progress is observed the student may regress. This uneven pace of learning is to be expected. Remain positive and consistent.

Developing a functional communication system is a major step towards independence. However, the process of teaching a person with autism how to communicate is a long one. Possibly several years may be needed to establish a good working foundation with the communication board. Throughout the process it is essential for the teacher/caregiver to believe that the student does have the potential to learn to express his basic wants and needs.

Once a communication system has been developed and implemented, the student must be encouraged to use it over time. Members of a student's interdisciplinary team must make a strong effort to communicate to future team members how the student is expected to communicate and what teaching procedures are the most successful. Unfortunately, as a student grows and transfers to new schools, work settings, or group homes, information about how best to work with the student does not usually transfer with him. All too often teachers want to change the systems, strategies and objectives.

Working on an Interdisciplinary team Includes developing a longterm educational plan as well as dealing with the practical, day-lo-day issues. The person with autism has the need and the right to longitudinal consistency designed from a solid base. A communication board may become as important as glasses or wheelchairs for other students.

SUMMARY

The focus of this publication has been on the development of an aided mode of communication. While this aspect of communicative development is very useful, it is not the entire solution. A person's expressive communication system should be a system of different communicative modes working together, often simultaneously to facilitate intelligibility of the communicative message. Teaching the use of a variety of gestures can also be of tremendous benefit for the nonverbal person. The Handbook of Autism and Pervasive Developmental Disorders (Cohen and Donnellan, 1987) offers further discussion on assessment and intervention strategies for persons with autism.

The Indiana Resource Center for Autism (IRCA) also has developed a number of training papers and booklets similar to this one on topics related to autism.

The IRCA also maintains an article file that can be accessed by topics areas and the Institute library has relevant books, journals, and training video tapes.

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